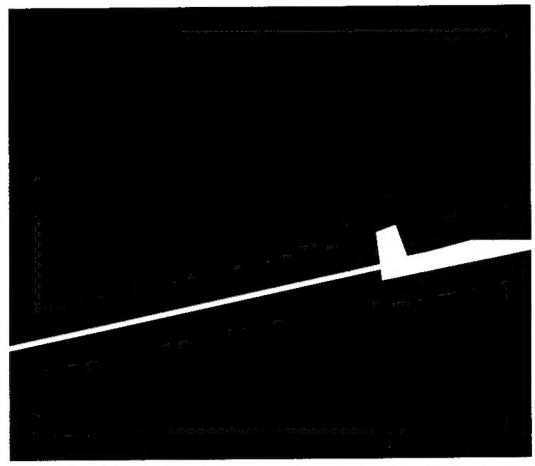

SIDAC

Supportability Investment Decision Analysis Center

Contract No. F33657-92-2055/0015
CDRL A002, A007
Report No. SID/SD-94/0011

(Unclassified)

Instructor Lesson Guide

Keyboard Maps for SM-ALC PC Connections to IBM, VAX and UNIX Hosts using Windows' Terminal or SmarTerm 320 Software through a Xyplex 1600 Terminal Server

Version 1.0

Prepared for
Department of the Air Force
Sacramento Air Logistics Center
SM-ALC/FMDD
5022 Bailey Loop
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January 27, 1994

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REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	27 January 1994	Instructor Lesson Guide

4. TITLE AND SUBTITLE

Keyboard Maps for SM-ALC PC Connections to IBM, VAX and UNIX Hosts using Windows' Terminal or SmarTerm 320 Software through a Xyplex 1600 Terminal Server, Version 1.0

5. FUNDING NUMBERS

Contract/Delivery Order F33657-92-2055/0015

6. AUTHOR(S)

Marti Tittl

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

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8. PERFORMING ORGANIZATION REPORT NUMBER

SID12140

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

SM-ALC/FMDD
5022 Bailey Loop
McClellan AFB CA 95652-5990

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

SID/SD-94/0011

11. SUPPLEMENTARY NOTES

Prepared under the direction of SIDAC.

12a. DISTRIBUTION/AVAILABILITY STATEMENT

Approved for Public Release; Distribution is Unlimited.

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

This guide provides training material to assist the technician in installing and configuring terminal eduction packages. It's main objective is to identify procedures to map PC keys to functions on IBM, UNIX and VAX hosts via XYPLEX terminal servers.

14. SUBJECT TERMS

Keymap, Windows, SmarTerm 320, XYPLEX

15. NUMBER OF PAGES

17

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	SAR

Contract No. F33657-92-2055/0015
CDRL A002, A007
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Foreward

The following document is intended to provide keymaps for connecting to various hosts most effectively with the least amount of effort or memorization required by the user. The original goal of providing all keyboards' appearance to be uniform with respect to the main F1-F12 keys on the PC (i.e., IBM's F1 = VAX's F1=UNIX F1= PC keyboard F1) is not possible. Persoft allows softkey definitions for a limited amount of keys. For instance, the Xyplex maps NUM 1 of the VT220 keyboard to the F1 key of the IBM 3278-2 keyboard and SmarTerm 320 cannot map the PC keyboard's F1 key to NUM 1.

However, ST320 provides a help screen to show all of the translations without disrupting the connection. For the vast majority of the users at McClellan AFB, PC with SmarTerm or Window's terminal should be effective and easy to use for the current applications on IBM, VAX and UNIX hosts.

OVERVIEW:

The following keymap charts are intended to provide the means to use a PC with either Persoft, Inc.'s SmarTerm 320 communications software or alternatively Microsoft Windows 3.1 (Windows) TERMINAL communication feature to connect and perform applications on host UNIX, IBM 3090, and DEC VAX systems via a Xyplex TCP/IP /LAT terminal server. Users are encourage to use SmarTerm 320 whenever possible as this package offers better capabilities than Windows' TERMINAL communications software. Users of this document are assumed to know installation, configuration and operational procedures of the PCs, Xyplex, and various host systems and their respective applications. The users of these keymap charts are intended to be those users who cannot otherwise connect directly to the ethernet using Frontier 's SuperTCP TCP/IP kernel for direct connection from PC to host.
There are 6 combinations of HOST-to-Terminal keymaps:

1. PC with SmarTerm320 to 3090 IBM using TCP/IP (Tn3270) protocol
2. PC with SmarTerm320 to VAX using LAT protocol
3. PC with SmarTerm320 to UNIX host using TCP/IP protocol
4. PC with Windows' Terminal to 3090 IBM using TCP/IP (Tn3270) protocol
5. PC with Windows' Terminal to VAX using LAT protocol
6. PC with Windows' Terminal to UNIX using TCP/IP protocol

The Xyplex terminal server functions as a data converter device . On one side of the Xyplex is asynchronous data from the PC 's serial port ; the other side is ethernet data encapsulating the TCP/IP or LAT protocols used to make connections to the host. Once established, the keyboard will be the means to communicate from the PC to the host. Since the PC keyboard is different then those keyboards like a true VT320 or IBM3278 keyboard, key maps are provided to provide a relationship between the two so the PC keyboard can communicate with the host. The following key map conversion charts are for SmarTerm 320 and Windows Terminal VT100 to establish VMS, UNIX, and IBM mainframe connections . See Fig. A

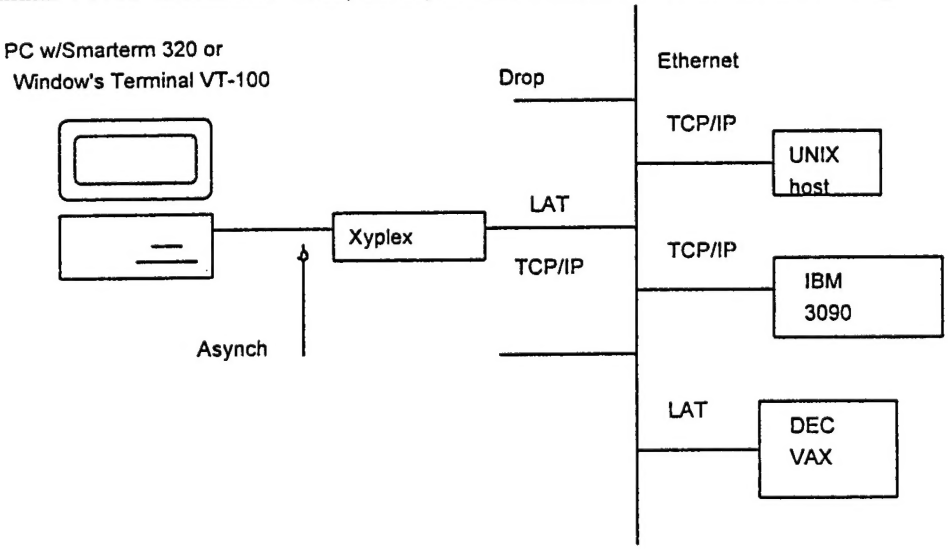


Figure A.
System diagram showing PC , Xyplex terminal server, and host computers.

1. PC with SmarTerm 320 connected to IBM 3090

IBM 3090 (Tn3270)	PC (ST320)
PF1	NUM 1
PF2	NUM 2
PF3	NUM 3
PF4	NUM 4
PF5	NUM 5
PF6	NUM 6
PF7	NUM 7
PF8	NUM 8
PF9	NUM 9
PF10	F1
PF11	F2
PF12	F3

Note:

Upon calling up TSO or CICP application on SCD01.MCCLELLAN.AF.MIL, change parameter setting for the keyboard to reflect 12 PF keys. Type ***< CNTRL >*** *<x> to reveal all of the 3278-2 keyboard to PC keyboard translations with "in-session" help provided with Xyplex 1600.*

2. PC with SmarTerm320 connected to DEC VAX

VAX	PC (ST320)
PF1(Gold Key)	F1
PF2	F2
PF3	F3
PF4	F4
F6	C-F1
F7	C-F2
F8	C-F3
F9	C-F4
F10	C-F5
F11	C-F6
F12	C-F7
F13	C-F8
F14	C-F9
HLP	C-F10
Do	A-1
F17	A-2
F18	A-3
F19	A-4
F20	A-5
S-F6	S-F1
S-F7	S-F2
S-F8	S-F3
S-F9	S-F4
S-F10	S-F5
S-F11	S-F6
S-F12	S-F7
S-F13	S-F8
S-F14	S-F9
S-HLP	S-F10
S-Do	A-6
S-F17	A-7
S-F18	A-8
S-F19	A-9
S-F20	A-0
Esc	Esc
Next Screen	F10
Prev Screen	F9

Note: Type <ALT><u> see the on-line keyboard help from ST320 software. Type <ALT><h>, <ALT<e> for DEC EDITOR help screen.

3. PC with SmarTerm320 connected to UNIX host

UNIX	PC(ST320)
F1	F1
F2	F2
F3	F3
F4	F4
F5	F5
F6	F6
F7	F7
F8	F8
F9	F9
F10	F10
F11	Alt F1
F12	Alt F2
F13	Alt F3
F14	Alt F4
F15	Alt F5
F16	Alt F6

Note: Initial logon to a UNIX host like USS.MCCLELLAN.AF.MIL will figure what the remote terminal type is and alert the key translations. Generally, most UNIX applications will work with most VT type terminals or terminal emulators and provide the translation at the host itself. Upon connection to USS, the PC display will indicate USS's negotiation of SmarTerm 320 emulating VT320 terminal.
For F12 thru F16 follow the steps below to program the proper escpape sequence for Alt F1 thru Alt F6.

1. Type <Alt> <S> within emulator mode to enter SmarTerm 320 Setup mode.

2. Use arrow keys to select softkey definitions and press <ret>.

3. Use the following definitions provided by the Ascent manual for F11 thur F16 to define the keys:

Ascent Command	*ST220*
F11	*<ESC>< ESC> 1*
F12	*<ESC><ESC>2*
F13	*<ESC><ESC>3*
F14	*<ESC><ESC>4*
F15	*<ESC><ESC>5*
F16	*<ESC><ESC>6*

4. Press <Esc>, then <s> for saving softkey definitions to the selected namedconfiguration.

5. Press <Alt><s> to return to emulator mode.

4. PC with Windows' Terminal connected to IBM 3090

3090 (Tn3270)	PC
PF1	^[Oq
PF2	^[Or
PF3	^[Os
PF4	^[Ot
PF5	^[Ou
PF6	^[Ov
PF7	^[Ow
PF8	^[Ox
PF9	^[Oy
PF10	^[OP
PF11	^[OQ
PF12	^[OR

Note: There is also a "bug" where the Terminal Emulation changes to TTY instead of locking on the VT100 mode. Therefore if the cursor is not moving upon carriage returns, verify the Terminal Emulation is VT100. Configure Terminal for: VT100, 19200 baud, com 1 no stop, no parity, no flow-control as a means to communicate through the Xyplex terminal server.

Steps for programming Function Keys for Windows:

1. Open a Terminal Application and name the file "IBM.TRM" for example.

2. Choose the Function Keys under the Settings menu.

3. Choose a Key level; There are 4 levels for eight keys for a possible 32 Function Keys assignment.

4. Assign a name to the Keyname Box and a corresponding command escape sequence on the Command Box.

5. Repeat steps 3 and 4 to fill in additional function keys.

6. Select the Keys Visible Check box for visible function keys.

7. Upon finishing, select the OK button.

See Figure A of Appendix for Function Keys example.

5. PC with Windows' Terminal connected to DEC VAX

VAX	PC
HELP (PF10)	^[OPH
PRE SCREEN	^[[5~
NEXT SCREEN	^[[6~
GOLD	^[OP
GOLD N <ret>	^[OPn^M
GOLD M <ret>	^[OPm^M
<ret>	^M
LOGOUT	logout^M
PF1	^[OP
PF2	^[OQ
PF3	^[OR
PF4	^[OS
Backspace	^H
Line Insert	ESC[<n>L
ESC	ESC
Char delete	ESC[<n>P
Char width	ESC[<n>@
Cursor reset	ESC 8
Erase entire line	ESC [2 K

Note: Configure the Windows' TERMINAL Settings as follows: VT100, 19200 baud, com 1, no stop, no parity, no flow-control as a means to communicate through the Xyplex terminal server. Follow the same steps for programming Function Keys for Windows on the previous page.

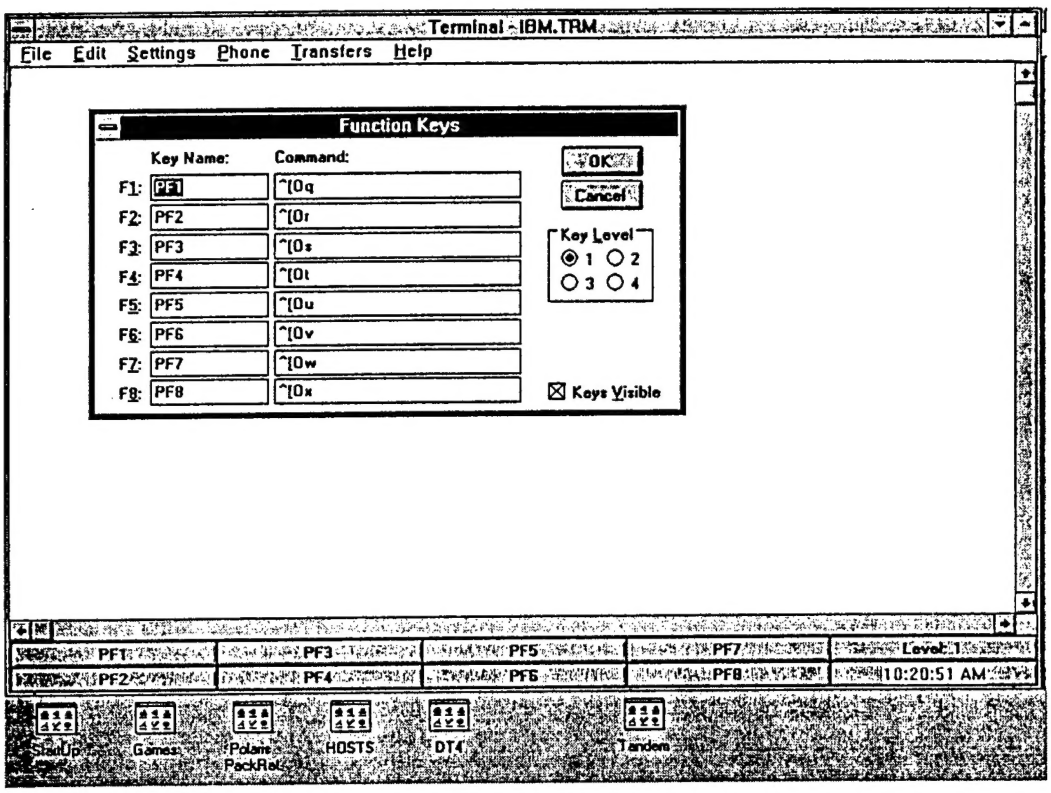
6. PC with Windows' Terminal connected to UNIX host

UNIX	PC
F1	ESC 1
F2	ESC 2
F3	ESC 3
F4	ESC 4
F5	ESC 5
F6	ESC 6
F7	ESC 7
F8	ESC 8
F9	ESC 9
F10	ESC 0
F11	ESC ESC 1
F12	ESC ESC 2
F13	ESC ESC 3
F14	ESC ESC 4
F15	ESC ESC 5
F16	ESC ESC 6
ENTER	ENTER

Note: Select Windows Terminal ***Settings/Communications:*** *VT-100, 19200 baud, no stop, no parity, no flow-control.*

The above keymap appears from USS after it identifies the remote keyboard to be Window's Terminal VT101(the same as VT100) keyboard. This keymap applies specifically to the ASCENT2 application on USS.MCCLELLAN.AF.MIL. Follow the steps in the previous example under PC with Windows connected to IBM 3090 for programming Function Keys.

APPENDIX A



Example of Function Key Display for PF1-PF8 (Key Level 1) in Window'sTerminal.

APPENDIX B:

Installation Procedures for SmartTerm 320 (Summary). Refer to SMARTERM 320 Installation for detailed step-by-step instructions.

Software and Hardware Requirements

Persoft Supplied

SmarTerm 320 User Manual
SmarTerm Diskettes (thee 5.25 inch diskettes or two 3.5 inch diskettes)
SmarTerm 320 Reference Card
License Agreement
Registration Card

IBM PC (or compatible) Equipment

IBM PC, XT, AT, PS/2 (or compatible) with 512KB
At least one high density (5.25 inch or 3.5 inch) or a hard disk
Monitor and graphics adapter (if you plan to use graphics)
I/O board or network connection
PC DOS, any version between 2.0 and 4.0

On-site Equipment

Cable from PC to Xyplex terminal server (consult Xyplex 1600 Hardware Installation and Maintenance Manual) Note: Xyplex 1600 Terminal Server is DTE and a PC workstation is DTE, therefore a **crossover cable** is necessary.

Procedures:

1. Before loading the installation diskette into the PC, make a hardware list of the following:
   Graphics Display Adapter
   132 Column Board if present:
   Network system (select serial port)
   Type of Keyboard i.e., AT , Enhanced, Enhanced (non-standard), PC/XT Keyboard, LK250 Keyboard

2. Type <install> and answer the set-up questions with respect to hardware equipment.

3. Use the Set-up Mode <ALT> <s> to configure one selection out of a possible eight.
   One configuration was sufficient since key mapping to the various types of hosts (VAX, IBM and UNIX) work satisfactorily.

APPENDIX B (cont.):

4. The following parameters were used on the test configuration:

Configuration name:	STANDARD
Primary phone number	
Communication parameters:	
Communication line	com port 1
baud rate	19200
Maximum trans. rate	Unlimited
bits/character-parity	8/none
stop bit	1 bit
auto XON/XOFF	64 chars
Disconnect on exit	yes
disconnect duration	2 sec
display parity error	yes
online/local	on-line
local echo	disable

5. Type <s> to save the configuration

6. type <ret> to return to the set-up menu

7. move the bar cursor to configuration "standard" , press return to enter emulator mode

8. At this point, you should see a prompt from the Xyplex terminal server (i.e., "S35520> ")

9. Use the telnet command to connect to the host (i.e., telnet uss.mcclellan.af.mil)

REFERENCES:

1." MS-Windows' 3.1 manual" copyright 1992 Microsoft Inc.

2. "SmarTerm 320 manual" copyright 1990 Persoft, Inc.

3. "PC/TCP Network Software for DOS, Users' Guide, Windows Reference Command Reference" Version 2.2 copyright 1991, FTP Software, Inc.

4. McClellan AFB LOGDIS Ascent Quick Ref. Guide, 12/92

5. SmarTerm 320 version 1.2 Reference Card